

Title: Canada ISA – Environmental Issues in
Canada's Oil and Gas Sector

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Environmental Issues in CANADA'S OIL AND GAS Sector

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Executives in Canada's oil and gas sector recognize the importance of stewardship toward the environment. Through associations and dedicated in-house professionals, this industry aggressively strives to limit its effect on air, land and water. Opportunities exist in Canada for American companies supplying products and services to monitor and control emissions, effect containment and reduce water consumption. The U.S. Commercial Service stands ready to assist export efforts to Canada and beyond.

Canada's Oil and Gas Sector Summary

Canada is the world's third largest producer of natural gas and the seventh largest producer of crude oil. Its oil production comes 36 percent from oil sands, seven percent from East Coast offshore operations, and the balance in traditional drill and gush

operations. Undeveloped energy resources include major crude oil and natural gas deposits in offshore areas in the north, gas reserves in the Yukon and Northwest Territories, and massive reserves of oil sands in Alberta. The upstream petroleum industry is active in 11 of the 13 provinces and territories. The building of the \$4 billion Mackenzie gas project promises massive gas production from Canada's north by 2010.

Confident Canadian producers are drilling at record levels: 23,920 wells in 2004 and an anticipated 25,000 in 2005. Sustained high oil and gas prices, together with the hunt for natural gas supplies are driving the growth.

In 2004, producers are expected to invest over US\$20 billion on exploration, development and field equipment. In excess of 80 percent of the spending will be in the Province of Alberta on conventional and oil sands development. Significant amounts will also be spent in British Columbia (BC) due to the discovery of a world-class natural gas field in north eastern BC, and on offshore activity in Canada's maritime provinces, primarily Newfoundland and Labrador.

2004 Industry Statistics:

(source CAPP – Canadian Association of Petroleum Producers)

Capital Spending:	Conventional	\$20.5 billion
	Oil Sands	\$ 4.8 billion
Wells Drilled:	Oil	4,700
	Natural Gas	16,000
	Total	23,920 (including dry and service)
Production:	Conventional Oil	1,409,000 barrels per day
	Surface Mining	465,000 barrels per day
	In-situ bitumen	532,000 barrels per day
	Pentanes plus/ Condensate	163,000 barrels per day
	Crude Oil	2,569,000 barrels per day
	Natural Gas	17.4 billion cubic feet per day
Industry Revenues:		\$68 billion
Exports:	Crude Oil	1,611,000 barrels per day
	Natural Gas	7.4 billion cubic feet per day
Refineries:	Number:	20
	Capacity:	1,960,000 barrels per day

Canada's Environmental Sector Overview

Canada is the 7th largest environment market in the world and, according to Industry Canada; it is expected to grow at a real rate of 3% annually through 2010. The domestic environment market is valued at \$21 billion and Canada is a net importer of environmental technologies.

Approximately two thirds of the environment industry firms in Canada are service providers, dealing in areas such as solid waste and wastewater management and treatment; water supply and purification; water, soil and air quality testing; and environmental engineering. The remaining one third of the firms are manufacturers, making a broad range of products that include clean process technologies and portable site remediation equipment (Government of Canada, 2002).

The growth of environmental business continues to outpace the national average and segments, like the sale of environmental equipment and goods, including environmental instrument, monitoring and analytical goods and services; and water/wastewater treatment products provide the most significant market opportunities

ENVIRONMENTAL ISSUES/OPPORTUNITIES **in Canada's Oil & Gas Sector**

AIR:

Opportunity: Understanding the strong reaction to emissions and odor, the industry is working to identify best practices and new technologies. Opportunity exists for companies who are developing products and services for odor and emission control as well a dehydration packages for benzene emissions. The following air quality issues surround this sector.

SOUR GAS: contains hydrogen sulphide(H_2S). Thirty per cent of natural gas produced in Western Canada is considered sour.

FLARING & VENTING: This industry has long used flaring and venting to safely dispose of gases that occur in the production and processing of crude oil.

Targets are in place to reduce the occurrence of flaring and venting in the industry. The instances have decreased by 70% in 2004 over 1996 levels.

BENZENE EMISSIONS (from Glycol Dehydrators): A light aromatic hydrocarbon, which occurs naturally as part of raw oil and natural gas, it's considered to be a non-threshold carcinogen.

SULPHUR DIOXIDE: a major component of a group of airborne contaminants termed "acidifying emissions".

CLIMATE CHANGE

Opportunity: While global in nature, Canada's oil and gas sector is aggressively seeking technology that will reduce greenhouse gas emissions and increase productivity while using less energy.

As energy use continues to rise, concern that increasing amounts of greenhouse gases may be contributing to changes in our climate.

WATER

Opportunity: The bulk of Canada's oil and gas sector is located in the province of Alberta, and this landlocked province is hurting for water. So much so that when permits are issued for major projects, water studies must be in place to prove water is available to support the development. The production of oil and gas, and especially the steam assisted gravity system used to extract oil from the oil sands in northern Alberta, is a huge user of this natural resource. Opportunities exist for American companies who have technologies for the reclamation of these waters, and/or technologies that can reduce the dependence on water.

Emerging practices and technologies include:

- new technologies to monitor, report and reduce water use.
- plugging seismic holes to prevent possible groundwater contamination.
- using environmentally friendly drilling fluids..
- recycling used water.
- Supporting water use research in areas such as water conservation and recovery methods.

LAND:

Opportunity: American companies developing technologies that reduce effects on land and contribute to these industries productivity are met with enthusiasm. Low-impact technologies that protect the land and reduce the cumulative effect are sought after.

Oil and gas activities have a direct and immediate impact on the land. The Province of Alberta and the Federal Government of Canada have a strict code of practice for exploration operations, which includes the reclamation of sites, back to pre-activity status.

Regulatory Requirements

As in most environmental markets, regulations drive the sector. Each Canadian province has the principal mandate to enact and enforce statutes. The Canadian Environmental Protection Act forms the basis for much of the legislation.

Entering and staying close to the Canadian environmental market and the regulatory swings of the provincial and federal jurisdictions, will, in most cases, require some type

of local presence. Although Canada has many national environmental standards and guidelines, they must still be enacted and enforced on a provincial level, leading to the need to stay abreast of regional opportunities.

Sector Import Market

American companies supply the lion's share of the import market in this sector from well over 75 per cent. Third country competitors include Japan, Finland, Germany and France.

End-user procurement analysts and engineers determine the needs of a project and write specifications for the bid process at each tender stage. When calling for tenders, procurement executives use an approved supplier list that each company develops.

Sector Market Access

Sector experts recognize U.S. products for their excellent quality, technological benefits, and good after-sales-service. U.S. manufacturers can improve market share by offering state-of-the-art products and employing reputable agents and distributors located within each of Canada's five regions, and, especially for the oil-gas sector in Alberta.

Because of the single-market dynamics of this sector, pricing tends to not be an issue. The U.S. supplies almost all-major equipment, while domestic companies supply components, support and service.

Canadian tax requirements, shipping and brokerage fees, and provision of credit terms, should be considered prudently. Products manufactured in the U.S. that meet NAFTA rules or origins are free of duties and tariffs. However, all goods are subject to a 7% Goods and Services Tax (GST), a value-added tax applied to all domestic and imported goods and services. With the exception of Alberta, each province also has a retail sales tax (PST).

Useful Links

– Canadian Petroleum/Environmental Industry Organizations and Regulatory entities:

Canadian Oilwell Drilling Contractors Association – www.caodc.ca

Canadian Association of Petroleum Producers – www.capp.ca

Alberta Energy Research Institute – www.aeri.ab.ca

Alberta Energy and Utilities Board – www.eub.gov.ab.ca

Alberta Energy – www.gov.ab.ca

Petroleum Society – www.petsoc.org

- ③ [Canadian Energy Research Institute \(CERI\)](#)
- ③ [Canadian Renewable Fuels Association \(CRFA\)](#)
- ③ [Canadian Solar Industries Association \(CanSIA\)](#)
- ③ [Canadian Wind Energy Association \(CanWEA\)](#)

- ③ [Centre for Alternative Transportation Fuels \(CATF\)](#)
- ③ [Energy Action Council of Toronto \(EnerACT\)](#)
- ③ [Pembina Institute for Appropriate Development \(The\)](#)
- ③ [Society Environment & Energy Development Studies Foundation \(SEEDS\)](#)
- ③ [Solar Energy Society of Canada](#)
- ③ [British Columbia Environmental Industry Association](#)
- ③ [Canadian Alliance on Trade and the Environment \(CATE\)](#)
- ③ [Canadian Chemical Producers' Association \(CCPA\)](#)
- ③ [Environmental Services Association of Alberta \(ESAA\)](#)
- ③ [Manitoba Environmental Industry Association \(MEIA\)](#)
- ③ [New Brunswick Environmental Industry Association \(NBEIA\)](#)
- ③ [Newfoundland and Labrador Environmental Industry Association \(NEIA\)](#)
- ③ [Nova Scotia Environmental Industry Association \(NSEIA\)](#)
- ③ [RÉSEAU Environnement \(in French only\)](#)
- ③ [Saskatchewan Environmental Industry and Managers Association \(SEIMA\)](#)

Upcoming Trade Events

The producer of all the major Canadian oil and gas trade shows, dmg world media, has its website at www.petroleumshow.com for registration. The following is a listing of its events pertaining to the oil and gas and environment sectors.

September 14-15, 2005 -**Oil Sands Trade Show and Conference**– Fort McMurray

Held in conjunction with a major conference program, this annual show highlights latest technologies and innovations. The event features keynotes from industry leaders, project updates, and a free series of leading technology presentations.

March 29-31, 2006 – **Globe 2006** –Vancouver, British Columbia

9th Biennial Trade Fair and Conference on Business and the Environment, Vancouver, British Columbia, March 29-31, 2006.

June 13-15, 2006 - **Global Petroleum Show 2006** - Calgary

Global Petroleum Show is a pivotal showcase for world-class technology in the fields of exploration, production and transportation of oil and natural gas. In 2006, the show is

held in conjunction with the Petroleum Society's 55th annual International Petroleum Conference. Together, these two major events will attract an anticipated 50,000 visitors from around the globe.

June (TBD) 2007 - **Go-Expo: Gas and Oil Exposition** - Calgary

Held in conjunction with the Petroleum Society's 55th Annual Canadian International Petroleum Conference. GO-EXPO showcases latest innovations. The 2007 event also features keynotes from industry leaders, project updates, and a series of free presentations. This show will run concurrently with the Canadian International Petroleum Conference - The premier organization for professionals, the Petroleum Society presents well over 100 technical presentations and its annual Awards Banquet. Contact 403-237-5112 to register.

U.S. Commercial Service Goldkey Service

If you are planning to attend any of the shows listed above, consider using our Goldkey Service. This very productive and cost effective resource will make your trip to Canada the most successful it can be. Commercial Service staff in Calgary will work with you to tailor an appointment schedule to help you meet your goals in the Canadian oil and gas sector. Contact Sharon Atkins at sharon.atkins@mail.doc.gov.

For additional information on the Canadian market for oil and gas pollution control equipment contact Sharon Atkins at sharon.atkins@mail.doc.gov; and for general Canadian environmental industry information contact the industry specialist Richard Vinson at richard.vinson@mail.doc.gov.